

<b>BROOKHAVEN NATIONAL LABORATORY</b> <b>NATIONAL SYNCHROTRON LIGHT SOURCE</b>		<b>Number:</b> <b>LS-SDL-0029</b>	<b>Revision: A</b>
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Subject: SDL PRE-ENGINEERED LIFT SDL 505.05-49 WEST END PLATES			
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SDL Pre-Engineered Lift

SDL 505.05-49 West End Plates

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## **1. PURPOSE**

This procedure covers the removal and installation of the WEST END SHIELD PLATES designated on NSLS SDL drawing number SDL-505.05-049 for the SDL beam line.

## **2. REFERENCES**

- 2.1. ES&H 1.5.1 Lockout/Tagout Requirements
- 2.2. ES&H 1.6.0 Material Handling: Equipment and Procedures
- 2.3. ES&H 1.6.1 Material Handling: Operator Training and Qualifications
- 2.4. ES&H 1.6.2 Lifting Safety
- 2.5. DOE-STD-1090-2001 Hoisting and Rigging
- 2.6. Drawing No. SDL-505.05-049 Source Development Lab NISUS Shielding, Lead Shielding Assembly

## **3. PRE-REQUISITES**

- 3.1. The beam line shall be shut down and LOTO applied and proper authorization obtained prior to starting this lift.
- 3.2. Barricades shall be erected to prevent un-authorized personnel from entering the area.
- 3.3. All personnel shall wear proper Personnel Protective Equipment (Hard Hat, Safety Shoes, Gloves).
- 3.4. All local hazards shall be located and identified.
- 3.5. A Critical Lift Review Form shall be current and approved by the BNL Lifting Safety Committee.
- 3.6. No work shall be performed on the shield plates while suspended from the crane.
- 3.7. A minimum of two (2) people, Crane Operator and Signal Person, shall be present to complete this procedure.
- 3.8. All personnel, authorized to be in the area, shall know and be capable of demonstrating the Emergency Stop Signal.

## **4. ROLES AND RESPONSIBILITIES**

- 4.1. A Person(s) In Charge (PIC) shall be designated by the NSLS. PICs shall be qualified as per ES&H 1.6.1 Material Handling. A PIC shall be present during any lift. The PIC shall not be the Crane Operator.

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- 4.2. One person shall be designated as the crane operator. He shall have a current SAC card for Crane Operator (Q010 and Q010A) and have completed the Basic Rigging Course (GST155). Only this person will operate the crane during this lift.
- 4.3. One person shall be designated as the signal person. This person shall have a completed the Basic Rigging course (GST-155). Only this person will give signals to the crane operator.

**NOTE: THE CRANE OPERATOR SHALL OBEY A STOP SIGNAL FROM ANY PERSON.**

## **5. INSPECTIONS**

- 5.1. The crane shall have a current annual inspection by the BNL Hoisting and Rigging Inspector.
- 5.2. All slings shall have a current annual inspection by the BNL Hoisting and Rigging Inspector.
- 5.3. A daily Overhead Crane/Hoist Inspection Checklist shall be completed at the beginning of each shift.
- 5.4. All rigging (eyebolts, shackles, slings etc.) shall be inspected for signs of wear at the beginning of each shift.
- 5.5. All threaded lifting holes shall be inspected for clean and proper threads.

## **6. EQUIPMENT:**

- 6.1 Overhead Crane 729CRNE-001.
- 6.2 Double leg bridle slings-minimum 3', adequate capacity
- 6.3 Eye bolts- adequate capacity
- 6.4 Shackles- adequate capacity.
- 6.5 Auxiliary Trolley- 2 ton minimum capacity
- 6.6 Auxiliary Chain Hoist- 2 ton minimum capacity

## **7. REMOVAL AND INSTALLATION PROCEDURE**

**CAUTION: The area over and around the beam line has many obstructions. Use extreme caution when working in this area.**

All of the shield plates for this section of the beam line utilize the same rigging. The rigging is attached and the plates are lifted in the same manner. Only the sequence in which the plates are lifted changes. See Section 7 for sequences.

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## 7.1 Top Plates

- 7.1.1 Remove any interfering items (lead bricks, end plate assembly (item 29)) from the shielding to be removed.
- 7.1.2 Install two double leg bridle slings onto the 2-ton crane (729-CRNE001) hook making sure that the hook mouse seats properly.
- 7.1.3 Position the overhead crane with slings over the shield plate that is to be removed.
- 7.1.4 Inspect the threaded holes to ensure that the eyebolts will engage properly.
- 7.1.5 Install the eyebolts into the shield plate.
- 7.1.6 Connect the slings to the eyebolts in the shield plate.
- 7.1.7 Take up the slack in the rigging. Check all of the rigging for proper alignment and adjust if necessary.
- 7.1.8 Remove all mounting hardware holding the shield plate in place.
- 7.1.9 Lift the shield plate high enough to clear the beam line.
- 7.1.10 Move the shield plate south and lower onto the floor.
- 7.1.11 Disconnect the rigging from the shield plate
- 7.1.12 Repeat steps 7.1.1 thru 7.1.11 for each top shield plate to be removed.

## 7.2 SOUTH and WEST SIDE PLATES

- 7.2.1 Remove any interfering items (lead bricks, end plate assembly (item 29)) from the shielding to be removed.
- 7.2.2 Remove Top Plates as per section 7.1 of this procedure.
- 7.2.3 Install a double leg bridle slings onto the 2-ton crane (729-CRNE001) hook making sure that the hook mouse seats properly.
- 7.2.4 Position the overhead crane with slings over the shield plate that is to be removed.
- 7.2.5 Inspect the threaded holes to ensure that the eyebolts will engage properly.
- 7.2.6 Install the eyebolts into the shield plate.
- 7.2.7 Connect the slings to the eyebolts in the shield plate.
- 7.2.8 Take up the slack in the rigging. Check all of the rigging for proper alignment and adjust if necessary.
- 7.2.9 Remove all mounting hardware holding the shield plate in place.
- 7.2.10 Lift the shield plate high enough to clear the beam line.
- 7.2.11 Move the shield plate south and lower onto the floor.

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7.2.12 Disconnect the rigging from the shield plate

7.2.13 Repeat steps 7.2.1 thru 7.2.11 for each shield plate to be removed.

### 7.3 NORTH SIDE PLATES

7.3.1 Remove the top and south and west side plates as per steps 7.1 and 7.2 of this procedure.

7.3.2 Position the crane trolley at the south end of the bridge rails. It shall stay at this location for the duration of NORTH SIDE PLATE removals.

7.3.3 Install an Auxiliary trolley and chain fall onto a bridge girder. Make sure that all fasteners are properly installed and the chain fall hook mouse is properly seated.

7.3.4 Install a double leg bridle sling onto the chain fall.

7.3.5 Position the overhead crane with the auxiliary trolley and chain hoist over the shield plate that is to be removed.

7.3.6 Inspect the threaded holes in the shield plate to ensure that the eyebolts will engage properly.

7.3.7 Install the eyebolts into the shield plate.

7.3.8 Connect the slings to the eyebolts in the shield plate.

7.3.9 Take up the slack in the rigging. Check all of the rigging for proper alignment and adjust if necessary.

7.3.10 Remove all mounting hardware holding the shield plate in place.

7.3.11 Lift the shield plate high enough to clear the beam line.

7.3.12 Move the shield plate south and lower onto the floor.

7.3.13 Repeat steps 7.3.1 thru 7.3.12 for each north side plate to be removed.

7.3.14 Disconnect the rigging from the shield plate. Inspect all rigging and return to its storage locker.

7.4 Remove the auxiliary chain hoist and trolley from the crane bridge rail and return the crane to normal service.

7.5 Return the crane to its normal storage location.

7.6 Install each plate by reversing the steps in 7.1, 7.2 and 7.3.

## 8. Lifting Sequences

The following section lists the sequence in which the shield plates at the west end of the SDL Beam Line shown on NSLS SDL drawing SDL-505.05-049 should be removed and installed. All shield plates are lifted following directions listed in Section 7.

8.1 Remove all interferences (Lead fillers, brackets, etc.).

8.2 Remove Assembly End Block.

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- 8.3 Remove Top Plates SDL-505.04-17
  - SDL-505.04-20
  - SDL-505.05-61
  - SDL-505.04-19
- 8.4 Remove South Side Plates SDL-505.05-62
  - SDL-505.05-60
  - SDL-505.04-32
  - SDL-505.04-13
- 8.5 Remove West End Plates SDL-505.04-31
  - SDL-505.04-30
- 8.6 Remove North Side Plates SDL-505.05-62
  - SDL-505.05-59
  - SDL-505.04-35

[Revision/Review Log](#)

Website maintained by [Laura Miller](#). Revision date: 12/04/2002

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